corresponding right either to stem the expansion or to expand their proposed allocation beyond the 11.35 megahertz at 1610-1621.35 MHz.[98/] This element of the Commission's sharing proposal is particularly troubling to TRW, as it provides a spectrum windfall for Motorola and imposes an absolute penalty on the surviving CDMA system if only one CDMA system is licensed.[99/]

There are four very serious problems with this proposal. First, the proposal fails to account for the possibility that the single CDMA system will be nearly or completely saturated at 11.35 megahertz of spectrum, and would thus have no "excess" spectrum to be adjusted.[100/] Second, it does not take into consideration the very real prospect that the single U.S. CDMA system will in fact be

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98/ See NPRM, 9 FCC Rcd at 1112 (¶¶ 33-34).

99/ Under the Commission's proposal, if only one CDMA system survives its implementation milestones and proceeds to operation, the Commission "propose[s] to adjust without hearing, any 'excess' spectrum assignment to that system." NPRM, 9 FCC Rcd at 1112 (¶ 33). Specifically, it would allow the FDMA/TDMA system, which already would have 5.15 megahertz of sole-use spectrum, to expand its spectrum use by fully 60 percent (to 8.25 megahertz) upon a demonstration of need for additional spectrum. Therein lies the windfall. However, even if the FDMA/TDMA system cannot show need or is otherwise out of the MSS Above 1 GHz picture, spectrum would still be taken away from the CDMA system so that the "freed 3.1 MHz of spectrum" that the FDMA/TDMA system could have obtained "could [then] be made available to new entrants." Id. at 1112 (¶ 34). Therein lies the penalty.

100/ Under the Commission's formulation, so long as Motorola can make a "showing of need" -- the particulars of which are not fleshed out at all in the NPRM -- the CDMA system must reduce its spectrum use from 11.35 to 8.25 megahertz. Id.

sharing the available bandwidth with one or more foreign MSS Above 1 GHz systems.[101/] Third, it does not provide CDMA applicants with a corresponding right to expand their spectrum use to frequencies above 1621.35 MHz, on a "showing of need" or otherwise, if the FDMA/TDMA system either is underutilizing its segment or has failed to meet its milestones. Fourth, it deprives all CDMA systems of the certainty necessary to make meaningful technical design and business planning decisions.[102/]

In short, this aspect of the Commission's proposal is not much different in character than the fundamentally flawed "start big/grow small" approach to spectrum assignment that Motorola and LQSS attempted to foist upon the applicants in their sharing plan.[103/] The open-ended prospect of FDMA/TDMA ingress into the

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101/ As all of the U.S. applicants have noted at various times, there are several foreign countries or intergovernmental entities that have announced intentions to establish MSS systems in the MSS/RDSS bands. The Commission itself noted that "[o]ther countries have expressed an interest in implementing mobile satellite systems in these bands and will go forward with the international coordination procedure for their systems regardless of the status of our domestic licensing process." NPRM, 9 FCC Rcd at 1114-1115 (¶ 40) & n.72.

102/ Channelization options are different for 11.35 megahertz of bandwidth than they are for 8.25 megahertz, and two synchronized CDMA systems sharing 11.35 megahertz of spectrum may have more than double the capacity of a single system occupying 8.25 megahertz -- or at least more than double the capacity that either one of those systems would have if forced to compact its operational system down from 11.35 to 8.25 megahertz. CDMA systems may have trouble seeking investors and partners if they have to face the prospect of having their assignment cut by nearly one-third at any time for circumstances completely beyond their control.

103/ For example, like the Motorola/LQSS sharing approach, the Commission's proposal (continued...)

portion of the band actually being used by the CDMA system -- not to mention the possibility of having to coordinate with a whole new species of system if the FDMA/TDMA system fails to meet its milestones -- is very problematic from both a technical design point of view and for business planning purposes. The ability of applicants to have assurance of their spectrum assignments is critical.

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As TRW noted above, when it has been presented with competing technical proposals for implementing a new satellite service -- one of which permits multiple entry and one of which does not -- the Commission did not segment the subject frequency band and award the plum portion to the non-competitive system. Instead, it concluded that the competitive benefits of multiple systems outweighed those of the non-competitive system, and allocated the entire available bandwidth for use by those systems that could advance its multiple entry policy.[104/]

Although TRW has for some time been willing to compromise its strongly-held conviction that it will ultimately prevail in its effort to have full-band

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[103/](...continued)
would take away 3.10 megahertz of spectrum (nearly one-third of the system's assignment) from an operating system at a time in its business life cycle when customer demand is increasing. This is both punitive and counterintuitive. See TRW/Constellation/Ellipsat Joint Response to Motorola/LQSS Joint Comments, CC Docket No. 92-166/ET Docket No. 92-28, at 5 (filed October 20, 1993).

[104/] See RDSS Licensing Order, 104 F.C.C.2d at 660-662.

interference sharing imposed across the entire 1610-1626.5 MHz band -- in the expectation that such a compromise will enable the Commission to establish the MSS Above 1 GHz service more swiftly -- it cannot subscribe to a compromise solution that treats it inequitably vis-a-vis a putative monopolist with no legally supportable claim to exclusive spectrum in this band.[105/] Insofar as the Commission's NPRM advances a proposal that does so favor Motorola, the proposal must be modified substantially or rejected.

c. Even If GLONASS Is Relegated To Frequencies Below 1610 MHz, MSS Above 1 GHz Operations In The 1610-1616 MHz Band Will Likely Suffer Significant Lingering Constraints.

It is clear, for the reasons set forth above, that an interim plan that addresses sharing under a scenario where GLONASS is still actively in the picture in frequencies above 1610 MHz is essential if the Commission is to develop a sharing plan that includes the Motorola FDMA/TDMA approach. What may not be so clear,

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105/ Contributing to the Commission's determination in the RDSS Licensing Order was its observation that the applicant whose proposed system could not share the subject band would have used the spectrum in a non-conforming way. See 104 F.C.C.2d at 660. Here, Motorola's non-sharing system would use the spectrum pursuant to a secondary allocation, but in a manner that would interfere with those systems that would use the MSS allocation at 1610-1626.5 MHz in a primary manner. Because the Commission's rules specify that stations of a secondary service "[s]hall not cause harmful interference to stations of primary or permitted services to which frequencies are already assigned or to which frequencies may be assigned at a later date[,]" (see 47 C.F.R. § 2.104(d)(4)), Motorola is in a situation very similar to the non-conforming applicant in the RDSS Licensing Order.

however, is the fact that even if the U.S. Government is successful in convincing the Russians to reconfigure the GLONASS system so that frequencies adjacent to and above 1610 MHz are not used, there will nevertheless be significant lingering constraints on MSS Above 1 GHz operations -- at least in the 1610-1616 MHz band that would be occupied under any scenario by CDMA systems, and possibly across the entire 1610-1626.5 MHz band. The net result of these constraints is that the spectrum at the upper end of the 1610-1626.5 MHz band that is to be assigned to Motorola's bi-directional FDMA/TDMA system is significantly freer of "taint" and constraints than is the lower portion of the band that will be used, if by any MSS Above 1 GHz systems, by CDMA systems.

There are likely to be interim out-of-band emission limitations imposed on MSS Above 1 GHz service uplinks in order to protect GLONASS.[106/] Although the precise limitations will depend in large part on the as yet undetermined degree to which the GLONASS system is required to be protected, it will not be unreasonable to expect that power limitations, expensive filtering, or some combination thereof will be applied to MSS uplink transmitters in at least the lower part of the 1610-1626.5 MHz band, and possibly across the entire band.

To minimize negative impact on the development of MSS operations in these bands, TRW believes that the Commission should put GLONASS receiver

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106/ See Section III(B), infra.

manufacturers on notice, with the adoption of service rules in this proceeding, that after a date certain, all new GLONASS receivers must include filters to insulate them from out-of-band MSS transmissions. These requirements should be imposed regardless of where GLONASS may ultimately be relocated and should be accompanied by the proviso that, in the future, upon the launch of the first MSS satellites, GLONASS will have no further rights to protection domestically.

The second way in which CDMA MSS Above 1 GHz operations below 1616 MHz will be constrained concerns the co-primary Radioastronomy service operations at 1610.6-1613.8 MHz. As proposed in the NPRM, MSS earth stations in the 1610.6-1613.8 MHz band may not operate during periods of radioastronomy operations when they are within certain geographic radii (either 160 kilometers or 50 kilometers, depending on the radioastronomy site) of any of 15 locations across the United States and on Puerto Rico.[107/] Although the Commission's proposed rules specify that beacon-actuated protection zones may be used in lieu of fixed protection zones,[108/] these procedures require coordination and still represent a constraint on the operation of all four CDMA MSS Above 1 GHz systems that is not imposed on the one FDMA/TDMA system.

107/ See NPRM, 9 FCC Rcd at 1157 (Appendix A, Proposed Rule Section 25.213(a)(1)).

108/ See id. at 1158 (Appendix A, Proposed Rule Section 25.213(a)(1)(vi)). See also Section III(A), infra.

d. The Commission's Proposal Does Not Address What Would Happen If One Or More CDMA Applicants Either Switched To The Favored FDMA/TDMA Scheme Or Sought To Operate On A Basis Other Than Full-Band Interference Sharing.

Two assumptions implicit in the Commission's sharing proposal must be dealt with explicitly before any sharing plan involving MSS Above 1 GHz applicants -- whether all CDMA or CDMA and FDMA/TDMA -- can be implemented. The first assumption is that all of the current applicants that seek or have announced an intention to establish CDMA systems will in fact do so and continue to specify CDMA transmission techniques,[109/] and the second assumption is that each of these applicants will continue to propose to share whatever spectrum is available to them on a full-band interference sharing basis. The Commission's sharing plan does not appear to accommodate the possibility that one or more of the CDMA applicants will amend its application to become an FDMA/TDMA system that seeks to use the MSS/RDSS bands on either a uni-directional or bi-directional basis, and it clearly does not contemplate the possibility that one or more of the current CDMA applicants would abandon full-band interference sharing in favor of an approach that provides it with access to a discrete segment of the 1610-1626.5 MHz band (as well as a

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109/ In this regard, TRW notes that while Constellation has been considered a CDMA applicant -- due to its participation on the Committee and its statement of intent to establish a CDMA system -- its application, as filed, calls for Constellation to use a two megahertz portion of the 1610-1626.5 MHz band on an exclusive, FDMA basis.

corresponding segment of the 2483.5-2500 MHz band) for its CDMA system. An applicant that pursues any of these actions could throw the entire sharing process into disarray.

If the Commission adopts a sharing plan and associated rules that favor applicants with FDMA/TDMA systems to the degree that the NPRM does, it would seem logical to expect that one or more applicants may seek to modify their transmission schemes in order to have an opportunity to move up into the better end of the frequency band.[110/] On the other hand, if the Commission makes reasonable adjustments to its plan that equalize the respective rights of the various interests, TRW would expect that few changes would materialize, unless, of course, extraneous conditions beyond the expectations of the applicants were to occur. In any case, it is important that the Commission clarify that a change in transmission techniques following the adoption of final service rules would not be considered a "major amendment" under the Commission's Rules.

110/ Indeed, the Commission may be obliged in those circumstances to provide all of the current applicants with an opportunity to modify their transmission techniques accordingly. See Melody Music, Inc. v. FCC, 345 F.2d 730 (D.C. Cir. 1965).

4. TRW's Solution Calls For The Adoption Of A Transitional Sharing Plan And Other Minor Adjustments. With These In Place, It Should Be Possible For The Commission To Arrive At A Plan That Enables The Five MSS Above 1 GHz Applicants To Share Whatever Amount Of The 1610-1626.5 MHz Band Is Available For Their Use.

If the Commission takes into consideration the various matters that TRW has addressed above -- the most important of which are the need to maintain a relative balance of equities between the pro-competitive CDMA systems that would share the lower portion of the 1610-1626.5 MHz band and Motorola's upper-band FDMA/TDMA system, and the need to address up front the GLONASS situation -- it should be possible to arrive at a workable sharing plan that is fundamentally fair to all five nongeostationary applicants. Mindful of the Commission's admonition to propose a plan that accommodates the reasonable requirements of all qualified applicants,[111/] TRW believes it has arrived at an approach to sharing between the four CDMA systems and Motorola's bi-directional FDMA/TDMA system that is in fact fair and pragmatic.

111/ See NPRM, 9 FCC Rcd at 1114 (¶ 38).

a. Outline Of The Plan

The Commission has laid the foundation for a sharing plan that can guide the establishment of the MSS Above 1 GHz service in the period before the 1610-1616 MHz band is made fully available for MSS use.[112/] As conceived preliminarily by the Commission, an interim sharing plan that assigns 7.5 megahertz for CDMA use and 3.3 megahertz for FDMA/TDMA use could provide a meaningful starting point for discussion.[113/]

TRW believes that if only 10.5 megahertz is available initially for MSS Above 1 GHz use, it is appropriate that Motorola start with proportionately less spectrum for its exclusive FDMA/TDMA system than it would be entitled to under any final plan to share the full 16.5 megahertz. As shown above, Motorola has itself suggested that it could operate its proposed FDMA/TDMA system in 3.3 megahertz of spectrum (which is the logical end point for the Motorola system under the Motorola/LQSS "start big/grow small" proposal) under a scenario where the full 16.5 megahertz band was presumed available for MSS Above 1 GHz use.

112/ See id. at 1111 (¶ 32) & n.64.

113/ If the ratios for the 10.8 megahertz that would be used for a 7.5/3.3 megahertz segmentation are compacted into the 10.5 megahertz allocation at 1616-1626.5 MHz, the totals used as a starting point by the Commission would actually be 7.3 megahertz for CDMA use and 3.2 megahertz for FDMA/TDMA use.

The baseline of the "TRW Sharing Plan" applies to the 1616-1626.5 MHz band only, but establishes principles that will guide the roll out of the MSS Above 1 GHz service as it expands to occupy more or all of the 1610-1626.5 MHz band.[114/] Thus, the initial phase of the TRW Sharing Plan is depicted in the following table:

CATEGORY OF USE	FREQUENCY BANDS
TDMA/FDMA (Bi-directional)	1623.25-1626.5 MHz
CDMA (All Systems on Full-Band Interference-Sharing Basis)	1616-1623.25 MHz

As additional spectrum becomes available, it would be made available to authorized and licensed systems on a proportionate basis. CDMA-licensed systems would receive 80 percent of the amount of any additional spectrum that is freed up (for pooling and

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114/ TRW's Sharing Plan is substantially different from the "Interim Sharing Plan" that was proposed in 1993 by TRW, Constellation, and Ellipsat, in that the "expansion band" at 1622.25-1623.5 MHz is divided ratably among the five applicants. As proposed in the TRW/Constellation/Ellipsat Sharing Plan, the Interim Sharing Plan for the 1616-1626.5 MHz bands looked as follows:

CATEGORY OF USE	FREQUENCY BANDS
TDMA/FDMA (Bi-directional)	1623.5-1626.5 MHz
Expansion/Reserve (Available to U.S. TDMA/FDMA and/or U.S. CDMA Systems Upon Demonstration of Need)	1622.25-1623.5 MHz
CDMA (All Systems on Interference-Sharing Basis)	1616-1622.25 MHz

See TRW/Constellation/Ellipsat Sharing Plan at 10.

sharing on a full-band interference-sharing basis) and the remaining 20 percent would be assigned for any licensed FDMA/TDMA system use,[115] up to a maximum assignment -- consistent with the Commission's own proposal -- of 11.35 megahertz (at 1610-1621.35 MHz) for CDMA systems and 5.15 megahertz (in the prime, unadulterated spectrum at 1621.35-1626.5 MHz) for the FDMA/TDMA system.[116] Any necessary guardbands between CDMA and FDMA/TDMA systems, however, would be entirely incorporated into the FDMA/TDMA users' band segment.[117]

In the event that there are fewer than four CDMA licensees or authorization holders at the time additional spectrum is made available between 1610 and 1616 MHz for MSS Above 1 GHz use, and Motorola still holds an authorization

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115/ This 80/20 split is the theory that led to the Commission's inference that Motorola could be accommodated in 3.3 megahertz of spectrum under the presumption that the full 16.5 megahertz band was available. See NPRM, 9 FCC Rcd at 1111 (¶¶ 31-32) & n.62.

116/ TRW is willing to agree that the 20 percent of any new spectrum made available to the FDMA/TDMA licensee as a result of GLONASS modifications could be added on to the lower end of its then-current assignment. TRW recognizes that as a system proposing secondary, bi-directional use of the 1610-1626.5 MHz band, Motorola has limitations upon the frequencies into which it is able to expand.

117/ Motorola's bi-directional FDMA/TDMA operation is a "secondary" service in the 1613.8-1626.5 MHz band. As such, stations operating in the band on a primary basis, as the uplink stations of all of the CDMA systems would be, are protected against interference from Motorola's secondary downlinks, and Motorola cannot claim protection from harmful interference for these downlinks. See 47 C.F.R. § 2.105(c) (1992); NPRM, 9 FCC Rcd at 1098 (¶ 6) & n.14. As a consequence, and given the inequitable preferences already granted the Motorola system, any necessary guardband between CDMA and FDMA/TDMA systems should come entirely from Motorola's portion of the allocation.

for its FDMA/TDMA system, the newly-available spectrum would be split proportionately among however many systems hold authorizations -- subject to the immutable condition that the total amount of spectrum to be assigned to Motorola's FDMA/TDMA system cannot exceed 5.15 megahertz.[118/] In other words, the plan proposed here would be free of the pitfalls and inequities that accompany the Commission's current proposal to allow the FDMA/TDMA system to expand willy-nilly into the bandwidth available to the CDMA systems.[119/]

TRW believes that this proposal is more than fair to the single currently proposed FDMA/TDMA user. Under the current GLONASS situation, it accords 3.25 megahertz of spectrum to Motorola for FDMA/TDMA use when the logical starting point would be to divide the available 10.5 megahertz band into five segments -- with Motorola getting one-fifth (or 2.1 megahertz) for its FDMA/TDMA operations, and the remaining four CDMA systems sharing the 8.4 megahertz balance

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118/ The proposal to cap the FDMA/TDMA system's spectrum assignment at 5.15 megahertz of a full 16.5 megahertz allocation reflects, in part, the discussion above to the extent that the upper portion of the 1610-1626.5 MHz band -- i.e., the only portion Motorola would ever occupy under the plan laid out here -- is free of most if not all of the interservice sharing constraints that now apply and will continue to affect the lower portion of the band.

119/ See Section II(A)(2)(b)(iii), supra. TRW's proposal also does not include a provision that would require a CDMA system preemptively to cede spectrum to encourage a future application. Spectrum in the MSS/RDSS bands is at a premium, and will remain so for the foreseeable future. If a future applicant can demonstrate its compatibility with whatever existing system or systems are authorized in the band at the time, it can be authorized. If all CDMA system authorizations are revoked and/or if the FDMA/TDMA system loses its authorization, all remaining applicants will have an opportunity to apply for the available spectrum. Nothing more is called for.

on a full-band interference sharing basis. Although 3.25 megahertz of spectrum may be below the Commission's inferred minimum for Motorola,[120/] the 7.25 megahertz that the four CDMA systems would share is also less than their minimum, as inferred by the Commission.[121/] The fact remains, however, that none of the systems can realistically expect to be saturated from the day they start service. Motorola's FDMA/TDMA system is given room to expand -- either gradually or all at once -- as the GLONASS situation is resolved.

Once GLONASS is out of the band -- and TRW acknowledges that the trigger points for determining when GLONASS is effectively removed remain to be determined -- the TRW plan gives Motorola the full 5.15 megahertz (justified or not) that the Commission proposes to assign it in the NPRM. Thus, Motorola has an incentive as strong as the CDMA applicants have to assist the U.S. Government in its ongoing efforts to reformulate GLONASS. With a coordinated effort, Motorola can expect to gain access to 5.15 megahertz perhaps even before its system (if licensed) becomes operational. This plan is eminently reasonable.

120/ As with the 5.15 megahertz ascribed to Motorola under the full-band plan, there is no basis in the record for presuming that Motorola could not actually establish a system that used even less than 3.3 megahertz at the outset.

121/ See NPRM, 9 FCC Rcd at 1110-1111 (¶ 31). Under the initial 10.5 megahertz allocation, Motorola would get fully 31 percent of the available spectrum for its FDMA/TDMA system. At 5.15 megahertz, Motorola would have 31 percent of the full 16.5 megahertz allocation.

Regardless of whether this or some other suitable proposal is adopted to permit sharing among multiple sharing-capable systems, the Commission should implement a full range of coordination requirements to facilitate the operation of multiple service providers in the MSS/RDSS bands. In addition to the specific provisions contained in the proposed revision of Section 25.141(f) of the Commission's Rules,[122/] the Commission should explicitly adopt the full-band interference coordination approach detailed in the Negotiated Rulemaking Committee's Majority Report.[123/] As detailed in the Committee Report, a successful coordination using this approach requires agreement on only a few basic technical parameters.[124/]

122/ See NPRM, 9 FCC Rcd at 1152 (Appendix A).

123/ See Committee Report at Annex 1, Majority Report at 2-1 to 2-3 and 2-12.

124/ See id. at 2-1 and 2-12.

b. **Other Operational Details**

i. **The NPRM Improperly Requires In-Orbit Systems To Demonstrate That They Can Operate Compatibly With Newly-Launched Systems; That Burden Should Be Shifted To The Newly-Launched Systems.**

In its NPRM, the Commission posits that "[w]hen a system is launched and ready to begin operating, we will permit it to operate over the entire assigned bandwidth for that technology. Any in-orbit CDMA system will be required to operate compatibly with any newly launched CDMA system."[125/]

Under the Commission's proposal for the MSS Above 1 GHz service, the systems employing full-band (or at least full-band segment) interference sharing will inevitably have to coordinate their operations in order to maximize the efficient use of assigned spectrum. TRW understands that such coordination is necessary, and undertakes to enter into such discussions in good faith. TRW believes, however, that rather than requiring operational CDMA systems to operate compatibly with systems just coming on line, as the NPRM seems to propose, the Commission should shift that burden to the newly-launched system. A system that is operational is of a relatively static design, while the same may not be true of the later system. It should be

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125/ NPRM, 9 FCC Rcd at 1111 (¶ 32).

incumbent on the new entrant to show that its system (including any last minute design modifications and accounting for any launch anomalies) lives up to its coordination agreement.

ii. MSS Above 1 GHz System Licenses Should Specify That System Operations Anywhere Around The World Will Be Compatible With The Terms And Conditions Of The License Issued By The Commission.

In recognition of the fact that MSS Above 1 GHz systems will be truly global in their operating scope, and that the sharing balance between CDMA and FDMA/TDMA systems is a delicate one, TRW calls upon the Commission to require that all MSS Above 1 GHz licenses in the 1610-1626.5 MHz and/or 2483.5-2500 MHz bands maintain globally the operating parameters that they are authorized to employ over the United States. In order to ensure that the U.S. systems have an opportunity to compete meaningfully in the global marketplace, they must be assured that the operating parameters in place in the United States are not abandoned once the satellites leave the area.

As the entities in control of their systems' operations, the licensees have the ability and responsibility to specify the technical conditions on which earth stations will access their satellites -- regardless of where those stations are located in the

world.[126/] The Commission, of course, has the authority to impose conditions on U.S. space station authorizations that flow through to ultimate end users, wherever those users may be.[127/] Such a limitation would also significantly ease the U.S. Government's burden as it works to coordinate the non-geostationary MSS systems internationally.

iii. Even If A Band Segmentation Scheme Is Adopted For The 1610-1626.5 MHz Band, The Commission Should Still Allow CDMA Systems To Share The Entire 2483.5-2500 MHz Band On A Full-Band Interference Sharing Basis.

In the NPRM, the Commission assumes that if CDMA systems are assigned to less than the full 16.5 megahertz of spectrum in the 1610-1626.5 MHz band, they will need a proportionately reduced assignment in the 2483.5-2500 MHz satellite-to-earth station band.[128/] It states that any spectrum so freed up in the 2483.5-2500 MHz band could be assigned to CDMA licensees in specific segments.

126/ Such a provision would not intrude upon the sovereignty of any foreign nation, as each country would be within its rights to deny access or limit access of any particular system. It would simply preclude any system or systems from operating under conditions that would place it or them in violation of the terms and conditions of their authorization from the Commission.

127/ See International Separate Systems, 101 F.C.C.2d at 1177-78 (subsequent history omitted).

128/ See NPRM, 9 FCC Rcd at 1113-1114 (¶ 37).

It also proposed not to assign the band at this time, but instead to consider assigning downlink frequencies at the time CDMA systems are licensed.[129/]

TRW urges the Commission to assign the full 2483.5-2500 MHz band for use by CDMA systems, regardless of whether some segment of the 1610-1626.5 MHz band is made available to FDMA/TDMA use. There is no technical reason why CDMA systems would require the same amount of uplink and downlink spectrum. The "forward" and "return" links to and from the mobile earth station are separate communications channels, and the factors determining system capacity on the uplink and downlinks are not identical. In other words, depending on the parameters of the subject MSS Above 1 GHz system, it may require differing amounts of uplink and downlink spectrum to obtain the same system capacity.[130/]

Furthermore, even if the bandwidth at 2483.5-2500 MHz for CDMA systems were to be matched to the bandwidth at 1610-1626.5 MHz, assignment of the full 16.5 megahertz would provide CDMA systems with flexibility to locate the operational band within the allocation. The actual assignment decision can be made in conjunction with the initial licensing of systems, but the Commission should determine

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129/ See id.

130/ The more spectrum that is available to a CDMA system, the less interference noise, both intersystem and intrasystem, there will be. With less noise, more channels can be accommodated. Therefore, with access to the full 2483.5-2500 MHz band, CDMA systems would be able to provide greater overall capacity than they could if the bandwidth were to be limited to the amount available to CDMA systems in the 1610-1626.5 MHz band.

in this proceeding that the entire 16.5 megahertz will be assigned for CDMA MSS Above 1 GHz system use.

B. TRW DISAGREES WITH THE COMMISSION'S TENTATIVE DETERMINATION THAT AN AUCTION OR LOTTERY WOULD BE THE MOST SUITABLE PROCESSING ALTERNATIVE IF A SHARING SOLUTION PROVES TO BE UNWORKABLE.

1. Establishing Qualifications And Procedures To Resolve Mutual Exclusivity Would Not Be As Complicated As The Commission Suggests, And A Lengthy Comparative Hearing Would Not Necessarily Be Required.

Should a band segmentation proposal ultimately prove unworkable, the Commission should proceed to determine which of the current technical proposals would best serve the public interest, convenience and necessity.[131/] Regardless of other statutory and regulatory considerations, discussed below, that militate against the use of other means of resolving the current differences among the applicants, this basic touchstone of Commission policymaking clearly mandates that the important fundamental decision of how scarce frequency spectrum is used not be made by mere chance or by sale to the highest bidder.

Significantly, in the House Report accompanying the legislation that authorized spectrum auctions, the MSS Above 1 GHz service was specifically mentioned as an instance where the option of using competitive bidding to assign

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131/ See 47 U.S.C. §§ 308 & 309.

licenses must not override the existing statutorily established means of setting spectrum use policies based on the needs and interests of the public. The House Report explicitly stated that the "creation of specific threshold qualifications, including service criteria" remained the critical method of ensuring that those ultimately assigned spectrum will make the best possible use of the assignment.[132/]

Rep. John D. Dingell, Chairman of the House Energy and Commerce Committee, subsequently underscored the intent of Congress in a November 15, 1993 letter to the Commission's then-Chairman James H. Quello. Congressman Dingell strongly emphasized that the Commission is required by the statute to continue to use such tools as "engineering solutions, negotiation, threshold qualifications, [and] service regulations" in order to avoid mutual exclusivity in the MSS Above 1 GHz service proceeding.[133/] Chairman Dingell plainly stated that "Congress clearly had the [MSS Above 1 GHz] proceeding in mind" when it added to the statute the language that admonishes the Commission not to abandon its traditional methods of avoiding mutual exclusivity, and that Congress "believed that mutual exclusivity could be avoided in that proceeding."[134/]

132/ H.R. Rep. 111, 103rd Cong., 1st Sess. 258-59 (1993), reprinted in 1993 U.S.C.C.A.N. 378, 585-86.

133/ Letter from Rep. John D. Dingell, Chairman, House Committee on Energy and Commerce, to Hon. James H. Quello, Chairman, FCC, dated November 15, 1993, at 2 ("Dingell Letter").

134/ Dingell Letter at 3.

The Commission has already articulated two categories of threshold qualifications relevant to the MSS Above 1 GHz service -- technical and financial. Consistent with Congress's expectation, the Commission can readily identify additional aspects of this service within the technical category by which the applicants may be evaluated -- including, for example, a specified spectrum access scheme. Indeed, a reasoned public interest determination on this issue can be made based on the record evidence submitted in this and collateral proceedings, without the need for time-consuming evidentiary hearings.[135/]

The Commission did just this in its initial adoption of the RDSS rules in 1986. There, the Commission made explicit the technical requirement that systems licensed in these bands be capable of sharing "the entire allocated frequency bands on a non-exclusive basis."[136/] Since that time, the Commission has consistently emphasized that the principal reason for this requirement is to secure the benefits of competitive multiple entry throughout the subject frequency bands.[137/] For this

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135/ The voluminous record in this proceeding includes not only these and other comments responding to the NPRM, but the extensive filings made in this docket as part of the negotiated rulemaking process, as well as the record developed in the allocation proceeding in ET Docket No. 92-28, and filings concerning each of the individual applications.

136/ 47 C.F.R. § 25.141(e) (1993) (formerly 47 C.F.R. § 25.392(e)(1986)); RDSS Licensing Order, 104 F.C.C.2d at 660-661.

137/ See, e.g., Geostar Positioning Corp., 6 FCC Rcd 2276, 2277-78 (1991) (The Commission stated that Geostar's modification proposal "strongly undercut[ ] the Commission's multiple entry policy for RDSS" because it diminished the capability for bandwidth sharing in the service.).

reason, the Commission also stated in the course of its initial adoption of the requirement that it would only approve a system design for these bands that did not comport with this core requirement upon a showing that the system design is unquestionably "superior to that proposed by other applicants or that the competitive benefits provided by independently licensed RDSS systems are outweighed by its system design."[138/] TRW believes that the Commission must seriously evaluate the considerable merits of continuing this approach for the MSS/RDSS bands, especially as the failure to do so would ignore the substantial public interest benefits that would accrue from a reasoned, as opposed to expedient, decision.

Even if mutual exclusivity remains after the selection of appropriate technical guidelines, the establishment of clear threshold standards should leave the Commission in a position to hold expedited written hearings -- utilizing oral presentations only if necessary -- on remaining public interest factors. Thus, while the Commission reasonably describes its past experiences with comparative hearings as indicating that they "usually are prolonged,"[139/] the drawn out process that has typified broadcast comparative hearings (or the initial cellular service comparative hearings) does not necessarily pertain to the type of hearing that could be conducted in

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138/ RDSS Licensing Order, 104 F.C.C.2d at 660. In so doing, the Commission rejected the technical proposal of an RDSS-band applicant that would not have permitted competitive multiple entry, but allowed the applicant an opportunity to amend its application to conform with the pro-competitive rules then adopted. Id. at 662.

139/ NPRM, 9 FCC Rcd at 1114 (¶ 40).

this context. The sort of hearing envisioned by TRW, focussed narrowly on technical issues, would likely be less time consuming than the typical FM application proceedings that form the bulk of the Commission's most recent past experience, with their myriad possible issues, including integration, local site availability, programming proposals, FAA approval, local residence, past broadcast record, past broadcast experience, etc.[140/]

In short, the FCC can utilize its expertise, and the record already developed, to establish an optimal set of technical standards for the non-geostationary MSS Above 1 GHz service. If it chooses this course, it can reach a final decision with sufficient expedition so as to avoid any disadvantage to the ultimate U.S. licensees.[141/] Given the legal and policy impediments to use of the alternative means of assignment (random selection and competitive bidding) -- not to mention the delays associated with the promulgation of implementing regulations and post-

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140/ Indeed, the Commission has recently taken steps to expedite even these formalized types of hearings. See Reexamination of the Policy Statement on Comparative Broadcast Hearings, 8 FCC Rcd 5475 (1993).

141/ Cf. NPRM, 9 FCC Rcd at 1114-1115 (¶ 40). Indeed, in the only prior satellite proceeding in which the potential length of a comparative hearing was cited as a reason for utilizing alternative means of resolving mutual exclusivity, the resolution of the ultimate licensee's legitimacy took six years, far longer than a comparative proceeding would likely have taken. See, e.g., Amendment of Parts 2, 22 and 25 of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service for the Provision of Various Common Carrier Services, 2 FCC Rcd 485 (1987) ("LMSS Report and Order"); Aeronautical Radio, Inc. v. FCC, 983 F.2d 275 (D.C. Cir. 1993) (intervening history omitted).

assignment litigation -- the setting of threshold standards, leading to an expedited hearing if necessary, is the best option for resolving mutual exclusivity in the event that the Commission's spectrum sharing proposal proves ineffective.

2. Competitive Bidding Cannot Be Used For Assignment Of Licenses For The Inherently Global MSS Above 1 GHz Service.

a. The Commission's Apparent Conclusion That Competitive Bidding May Be Appropriate For Assignment Of Spectrum To MSS Above 1 GHz Service Licensees Is Inconsistent With The Objectives Of The Legislation Authorizing Spectrum Auctions.

In the NPRM, the Commission tentatively concluded that it is authorized to use competitive bidding procedures, if necessary, to assign licenses in the MSS Above 1 GHz service.[142/] However, before doing so, the Commission must squarely confront the issue whether employing auctions for international satellite system authorizations is consistent with the objectives underlying the legislation permitting auctions. TRW believes that the goals sought to be served by the auction legislation are inherently incompatible with the use of auctions for the MSS Above 1 GHz service.

On the subject of the competitive bidding legislation in general, Chairman Dingell stated in his November letter to then-Chairman Quello:

142/ See NPRM, 9 FCC Rcd at 1117 (¶ 43).